This application contains claims 1-60. Claims 18, 38 and 58 have been canceled without prejudice. Claims 1, 3, 5, 10, 19-21, 23, 25, 30, 39-41, 43, 45, 50, 59 and 60 are hereby amended. No new matter has been introduced. Reconsideration is respectfully requested.

Applicants thank Examiner Kim for the courtesy of a personal interview with Applicants' representative, Sanford T. Colb (Reg. No. 26,856), held in the USPTO on June 7, 2007. At the interview, Mr. Colb presented a proposed amendment to claim 1, in order to overcome the rejections of the claim under 35 U.S.C. 112 and 35 U.S.C. 102(b). Mr. Colb proposed to add to claim 1 the feature that sending the message from the primary to the secondary storage subsystem causes the secondary storage subsystem to predict one or more further locations to which the host processor has not yet written data and is expected to write the data in a subsequent write operation, and to add the further locations to the record. It was agreed in the interview that the claim would be allowable over the cited art if it were also to recite that the number of predicted bits to set is chosen so as to achieve a desired balance between low average latency and rapid failure recovery (as recited in paragraph 0066 of the published version of this application, US 2005/0081089). Applicant has amended the claims accordingly.

Claims 1, 3, 5, 10, 21, 23, 25, 30, 41, 43, 45 and 50 were rejected under 35 U.S.C. 112, second paragraph, for use of conditional "if" statements. Applicants have amended these claims, as proposed in the interview, to remove the conditional language. In view of this amendment, all of the claims in this application are now believed to meet the requirements of 35 U.S.C. 112.

Claims 1-12, 18-32, 38-52 and 58-60 were rejected under 35 U.S.C. 102(b) over Yanai et al. (U.S. Patent

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5,742,792). Applicants have amended independent claims 1, 10, 21, 30, 41 and 50, as agreed in the interview, in order to clarify the distinction of the claimed invention over Yanai.

Claim 1 recites a method for managing a data storage system in which data are stored on non-volatile storage media in both primary and secondary storage subsystems. The method uses a record on the secondary storage subsystem that is predictive of locations to which data are to be written on the primary storage subsystem by a host processor. Applicant has amended claim 1, as agreed in the interview, to include the features of claim 18 (now canceled) and additional clarifying language based on the specification. Claims 19 and 20 have been amended for proper dependence from claim 1 in view of the cancellation of claim 18. Amended claim 1 now recites that the secondary storage subsystem predicts one or more further locations to which the host processor is expected to write in a subsequent write operation but has not yet written data, and adds these locations to the record. The secondary storage subsystem sets a number of predicted bits in the record, wherein the number is chosen so as to achieve a desired balance between low average latency and rapid failure recovery.

Yanai (and likewise other sources in the prior art) may very well keep a record of locations to which the host processor has written data, and possibly also a record of locations that are free because no data have been written to them. Yanai neither teaches nor suggests, however, the unusual type of predictive record-keeping that is recited in amended claim 1. The passage cited by the Examiner against claim 18 (col. 25, lines 16-61, in Yanai) describes states of primary and secondary storage volumes for controlling host access and a "Sync Required" attribute for secondary volumes that

may be used in this context. It makes no mention of the unique features that are now recited in amended claim 1.

Thus, claim 1, as amended, is patentable over Yanai. In view of the patentability of claim 1, dependent claims 2-9, 11, 12, 19 and 20 are also believed to be patentable.

Independent claim 10 is similar to claim 1, with the added feature that the primary storage subsystem maintains a copy of the record on the secondary storage subsystem and uses the copy in determining whether to send the message. Claim 10 has been amended in like fashion to claim 1, and is therefore believed to be patentable, as well, for the reasons stated above.

Claims 21-32, 39-52, 59 and 60 recite apparatus and computer software products that operate on principles similar to those of the methods of claims 1-12, 19 and 20. Independent claims 21, 30, 41 and 50 have been amended in like manner to claims 1 and 10. Claims 38 and 58 have been canceled, and claims 39, 40, 59 and 60 have been amended for proper dependence from claim 21 or claim 41. Claims 21-32, 39-52, 59 and 60 are therefore believed to be patentable for the reasons explained above.

Dependent claims 13-17, 33-37 and 53-57 were rejected under 35 U.S.C. 103(a) over Yanai in view of Dunham (U.S. Patent 6,269,431) and, with respect to some of the claims, further in view of official notice. In view of the patentability of the amended independent claims, these dependent claims are believed to be patentable, as well.

Applicants believe the amendments and remarks presented above to be fully responsive to all of the grounds of rejection raised by the Examiner. In view of these amendments and remarks, all of the claims now pending in this application are believed to be in

condition for allowance. Prompt notice to this effect is
requested.

         Please charge any fees
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          Respectfully submitted,

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